

## THE CLAIMS

What is claimed is:

1. A method for protecting data stored in a RAID-configured storage system from uncorrectable media errors, the RAID-configured storage system having a plurality of storage units, the method comprising:

associating  $n$  data information sectors with  $c$  redundancy information sectors, the  $c$  redundancy information sectors being based on the  $n$  data information sectors; and

writing the  $n$  data information sectors with  $c$  redundancy information sectors on the same storage unit.

2. The method according to claim 1, wherein the RAID-configured storage system is configured as a RAID 6 storage system.

3. The method according to claim 1, wherein the RAID-configured storage system is configured as a RAID 5 storage system.

4. The method according to claim 1, wherein the RAID-configured storage system is configured as a RAID 51 storage system.

5. The method according to claim 1, wherein the RAID-configured storage system is configured as a RAID 3 + 3 storage system.

6. The method according to claim 1, wherein the RAID-configured storage system is configured as a RAID  $N + 3$  storage system.

7. The method according to claim 1, wherein the redundancy information is based on a Reed-Solomon code.

8. The method according to claim 1, wherein the redundancy information is an XOR-based code.

9. The method according to claim 1, wherein the redundancy information is a one-dimensional parity.

10. The method according to claim 1, wherein the storage unit is a hard disk drive.

11. The method according to claim 1, wherein the storage unit is an optical drive.

12. The method according to claim 1, wherein the storage unit is a random access memory.

13. The method according to claim 1, wherein the  $n$  data information sectors and the  $c$  redundancy information sectors are written consecutively.

14. The method according to claim 1, wherein the  $n$  data information sectors and the  $c$  redundancy information sectors are intermingled when written.

15. The method according to claim 1, further comprising:  
receiving  $n$  data information sectors; and  
generating  $c$  redundant information sectors.

16. A storage medium having a recording format therein, the format comprising  $c$  redundancy information sectors that are associated with  $n$  data information sectors to form a segment, the  $c$  redundancy information sectors being based on the  $n$  data information sectors, and the segment being stored on a single storage medium that is part of a single storage unit in an array of storage units in a RAID-configured storage system.

17. The storage medium according to claim 16, wherein the RAID-configured storage system is configured as a RAID 6 storage system.

18. The storage medium according to claim 16, wherein the RAID-configured storage system is configured as a RAID 5 storage system.

19. The storage medium according to claim 16, wherein the RAID-configured storage system is configured as a RAID 51 storage system.

20. The storage medium according to claim 16, wherein the RAID-configured storage system is configured as a RAID 3 + 3 storage system.

21. The storage medium according to claim 16, wherein the RAID-configured storage system is configured as a RAID  $N + 3$  storage system.

22. The storage medium according to claim 16, wherein the redundancy information is based on a Reed-Solomon code.

23. The storage medium according to claim 16, wherein the redundancy information is an XOR-based code.

24. The storage medium according to claim 16, wherein the redundancy information is a one-dimensional parity.

25. The storage medium according to claim 16, wherein the storage unit is a hard disk drive.

26. The storage medium according to claim 16, wherein the storage unit is an optical drive.

27. The storage medium according to claim 16, wherein the storage unit is a random access memory.

28. The storage medium according to claim 16, wherein the  $n$  data information sectors and the  $c$  redundancy information sectors are in a consecutive arrangement.

29. The storage medium according to claim 16, wherein the  $n$  data information sectors and the  $c$  redundancy information sectors are in an intermingled arrangement.

30. A storage system, comprising:  
an array controller; and  
a plurality of storage units coupled to the array controller, the storage units being configured in a RAID configuration, and at least one data segment being stored on at least one storage unit, each data segment including  $n$  data information sectors and  $c$  redundancy information sectors, the  $c$  redundancy information sectors being based on the  $n$  data information sectors.

31. The storage system according to claim 30, wherein the storage system is configured as a RAID 6 storage system.

32. The storage system according to claim 30, wherein the storage system is configured as a RAID 5 storage system.

33. The storage system according to claim 30, wherein the storage system is configured as a RAID 51 storage system.

34. The storage system according to claim 30, wherein the storage system is configured as a RAID 3 + 3 storage system.

35. The storage system according to claim 30, wherein the storage system is configured as a RAID N + 3 storage system.

36. The storage system according to claim 30, wherein the redundancy information is based on a Reed-Solomon code.

37. The storage system according to claim 30, wherein the redundancy information is an XOR-based code.

38. The storage system according to claim 30, wherein the redundancy information is a one-dimensional parity.

39. The storage system according to claim 30, wherein the data segment is stored on at least one storage unit that is a hard disk drive.

40. The storage system according to claim 30, wherein the data segment is stored on at least one storage unit that is an optical drive.

41. The storage system according to claim 30, wherein the data segment is stored on at least one storage unit that is a random access memory.

42. The storage system according to claim 30, wherein the n data information sectors and the c redundancy information sectors are in a consecutive arrangement.

43. The storage system according to claim 30, wherein the  $n$  data information sectors and the  $c$  redundancy information sectors are in an intermingled arrangement.